Amendments to the Claims:

This listing of claims replaces all prior versions and listings of claims in the application:

Listing of Claims:

1-80. (Canceled)

81. (Previously Presented) A synthetic nucleic acid sequence which encodes human Factor VIII or a functional portion thereof, wherein at least one non-common codon or less-common codon has been replaced by a common codon encoding the same amino acid residue as the non-common or less-common codon and wherein the synthetic nucleic acid has a continuous stretch of at least 150 codons all of which are common codons, wherein by a common codon is meant the most common codon encoding each particular amino acid residue in highly expressed human genes as shown in Figure 14A-B.

82. (Previously Presented) The synthetic nucleic acid sequence of claim 81 where the factor VIII protein has one or more of the following characteristics:

a) the B domain is deleted (beta domain deleted (BDD) factor VIII);

b) it has a recognition site for an intracellular protease of the PACE/furin class; or

c) it is expressed in a non-transformed cell.

83. (Previously Presented) The synthetic nucleic acid sequence of claim 81, wherein the number of non- common or less- common codons replaced or remaining is between one and 15.

84. (Previously Presented) The synthetic nucleic acid sequence of claim 81, wherein all non- common and less-common codons are replaced with common codons.

85. (Previously Presented) A synthetic nucleic acid sequence which encodes human Factor VIII or a functional portion thereof, wherein at least one non-common codon or less-common codon has been replaced by a common codon encoding the same amino acid residue as the non-common or less-common codon and wherein the synthetic nucleic acid has a continuous stretch of common codons which comprise at least 60% of the codons of the synthetic nucleic acid sequence, wherein by a common codon is meant the most common codon encoding each particular amino acid residue in highly expressed human genes as shown in Figure 14A-B.

86. (Previously Presented) The synthetic nucleic acid sequence of claim 85 where the factor VIII protein has one or more of the following characteristics:

a) the B domain is deleted (BDD factor VIII);

b) it has a recognition site for an intracellular protease of the PACE/furin class;

or

c) it is expressed in a non-transformed cell.

87. (Previously Presented) The synthetic nucleic acid sequence of claim 85, wherein the number of non- common or less- common codons replaced or remaining is between one and 15.

88. (Previously Presented) The synthetic nucleic acid sequence of claim 85, wherein all non- common and less-common codons are replaced with common codons.

89. (Previously Presented) A synthetic nucleic acid sequence which encodes human Factor VIII or a functional portion thereof, wherein at least one non-common codon or less-common codon has been replaced by a common codon encoding the same amino acid residue as the non-common or less-common codon and wherein at least 98% or more of the codons in the sequence encoding the Factor VIII are common codons and the Factor VIII is at least 90 amino acid residues in length, and wherein by a common codon is meant the most common codon

encoding each particular amino acid residue in highly expressed human genes as shown in Figure 14A-B.

90. (Previously Presented) The synthetic nucleic acid sequence of claim 89 where the factor VIII protein has one or more of the following characteristics:

a) the B domain is deleted (BDD factor VIII);

b) it has a recognition site for an intracellular protease of the PACE/furin class; and

c) it is expressed in a non-transformed cell.

91. (Previously Presented) The synthetic nucleic acid sequence of claim 89, wherein the number of non- common or less- common codons replaced or remaining is between one and 15.

92. (Previously Presented) The synthetic nucleic acid sequence of claim 89, wherein the number of non- common or less- common codons replaced or remaining, taken together, are equal or less than 2% of the codons in the synthetic nucleic acid sequence.

93. (Previously Presented) The synthetic nucleic acid sequence of claim 89, wherein all non- common and less-common codons are replaced with common codons.

94. (Previously Presented) The synthetic nucleic acid sequence of claim 89, wherein at least 99% of the codons in the synthetic nucleic acid sequence are common codons.

95. (Canceled)

96. (Previously Presented) The synthetic nucleic acid sequence of claim 89, wherein all of the codons are replaced with common codons.

97. (Previously Presented) A synthetic nucleic acid sequence which encodes human Factor IX, wherein at least one non-common codon or less-common codon has been replaced by a common codon encoding the same amino acid residue as the non-common or less-common codon and wherein the synthetic nucleic acid has a continuous stretch of at least 150 codons all of which are common codons, and wherein by a common codon is meant the most common codon encoding each particular amino acid residue in highly expressed human genes as shown in Figure 14A-B.

98. (Previously Presented) The synthetic nucleic acid sequence of claim 97, wherein the Factor IX protein has one or more of the following characteristics:

a) it has a PACE/furin site at a pro-peptide mature protein junction; and

b) is expressed in a non-transformed cell.

99. (Previously Presented) The synthetic nucleic acid sequence of claim 97, wherein the number of non- common or less- common codons replaced or remaining is between one and 15.

100. (Previously Presented) A synthetic nucleic acid sequence which encodes human Factor IX, wherein at least one non-common codon or less-common codon has been replaced by a common codon encoding the same amino acid residue as the non-common or less-common codon and wherein the synthetic nucleic acid has a continuous stretch of common codons which comprise at least 60% of the codons of the synthetic nucleic acid sequence, and wherein by a common codon is meant the most common codon encoding each particular amino acid residue in highly expressed human genes as shown in Figure 14A-B.

101. (Previously Presented) The synthetic nucleic acid sequence of claim 100, wherein the number of non- common or less- common codons replaced or remaining is between one and 15.

102. (Previously Presented) The synthetic nucleic acid sequence of claim 100, wherein the factor IX protein has one or more of the following characteristics:

a) it has a PACE/furin site at a pro-peptide mature protein junction; and

b) is expressed in a non-transformed cell.

103. (Previously Presented) A synthetic nucleic acid sequence which encodes human Factor IX, wherein at least one non-common codon or less-common codon has been replaced by a common codon encoding the same amino acid residue as the non-common or less-common codon and wherein at least 98% or more of the codons in the sequence encoding the Factor IX are common codons and the Factor IX is at least 90 amino acid residues in length, and wherein by a common codon is meant the most common codon encoding each particular amino acid residue in highly expressed human genes as shown in Figure 14A-B.

104. (Previously Presented) The synthetic nucleic acid sequence of claim 103, wherein the factor IX protein has one or more of the following characteristics:

a) it has a PACE/furin site at a pro-peptide mature protein junction; and

b) is expressed in a non-transformed cell.

105. (Previously Presented) The synthetic nucleic acid sequence of claim 103, wherein the number of non- common or less- common codons replaced or remaining is between one and 15

106. (Previously Presented) The synthetic nucleic acid sequence of claim 103, wherein the number of non- common or less- common codons replaced or remaining, taken together, are equal or less then 2% of the codons in the synthetic nucleic acid sequence.

107. (Previously Presented) The synthetic nucleic acid sequence of claim 103, wherein all non- common and less-common codons are replaced with common codons.

108. (Previously Presented) The synthetic nucleic acid sequence of claim 103, wherein at least 99% of the codons in the synthetic nucleic acid sequence are common codons.

109. (Canceled)

110. (Previously Presented) The synthetic nucleic acid sequence of claim 103, wherein all of the codons are replaced with common codons.

111. (Currently Amended) A vector comprising the synthetic nucleic acid sequence of claim ~~64, 69, or 73~~ 81, 85, 89, 97, 100 or 103.

112. (Currently Amended) A cell comprising the nucleic acid sequence of claim ~~64, 69, or 73~~ 81, 85, 89, 97, 100 or 103.

113-135. (Canceled)